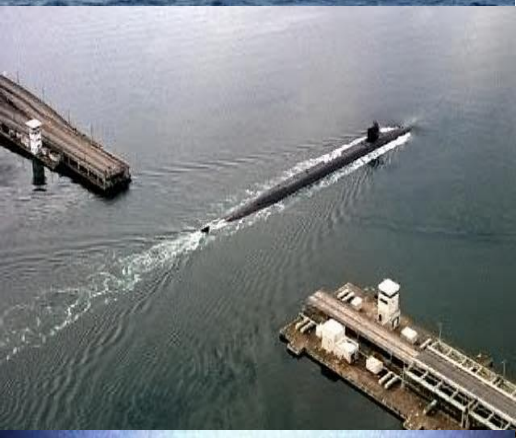
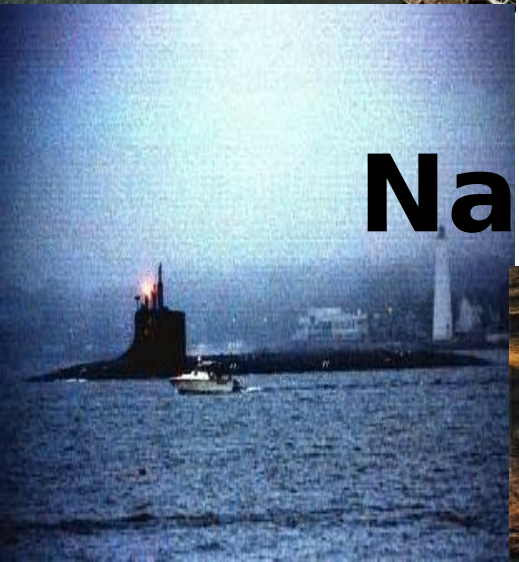




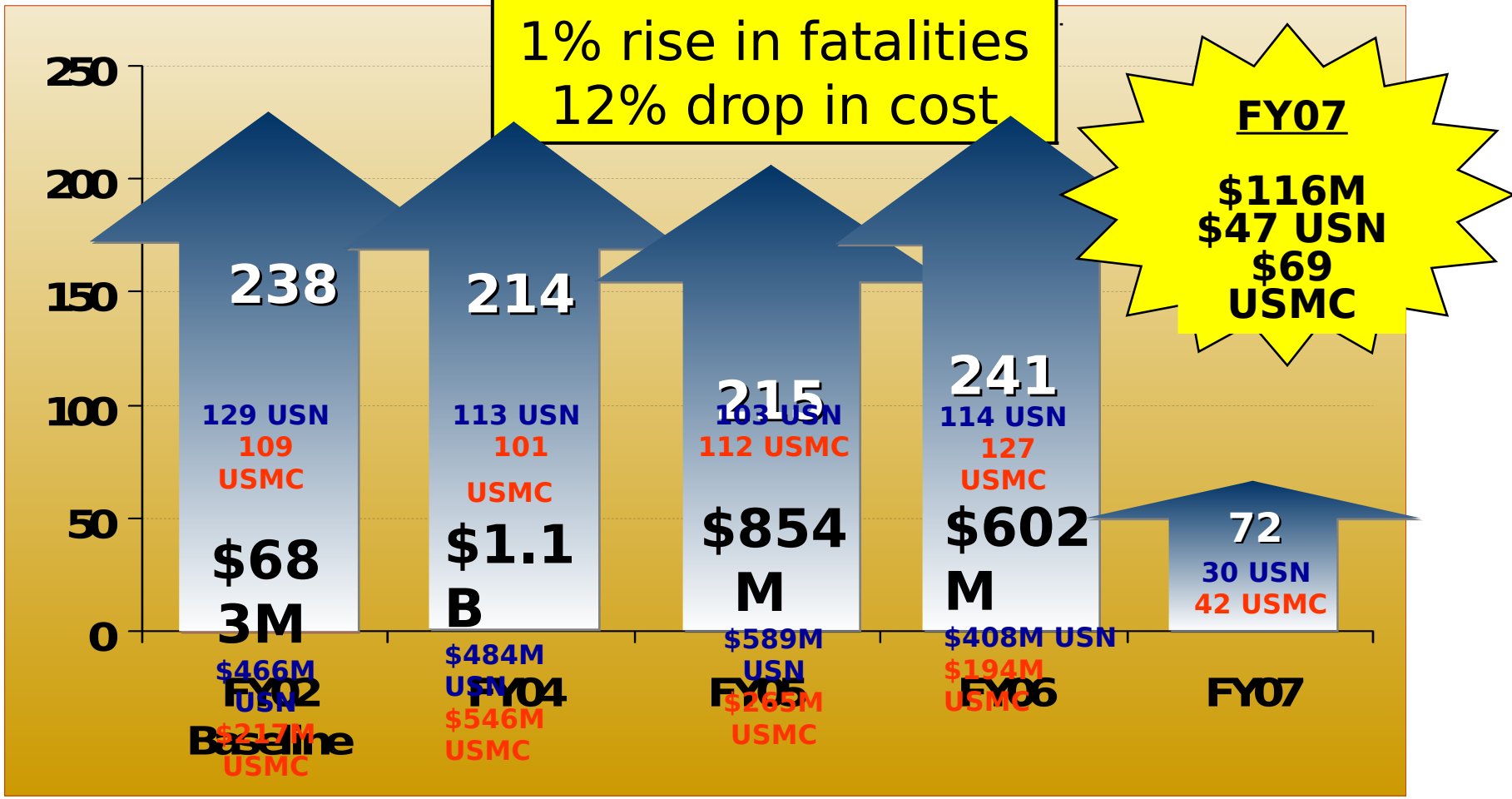





RADM Mayer
Naval Safety Center

USN/USMC Fatalities & Resources Lost During Misha[illegible]mpaign

From FY02 to FY06:
1% rise in fatalities
12% drop in cost



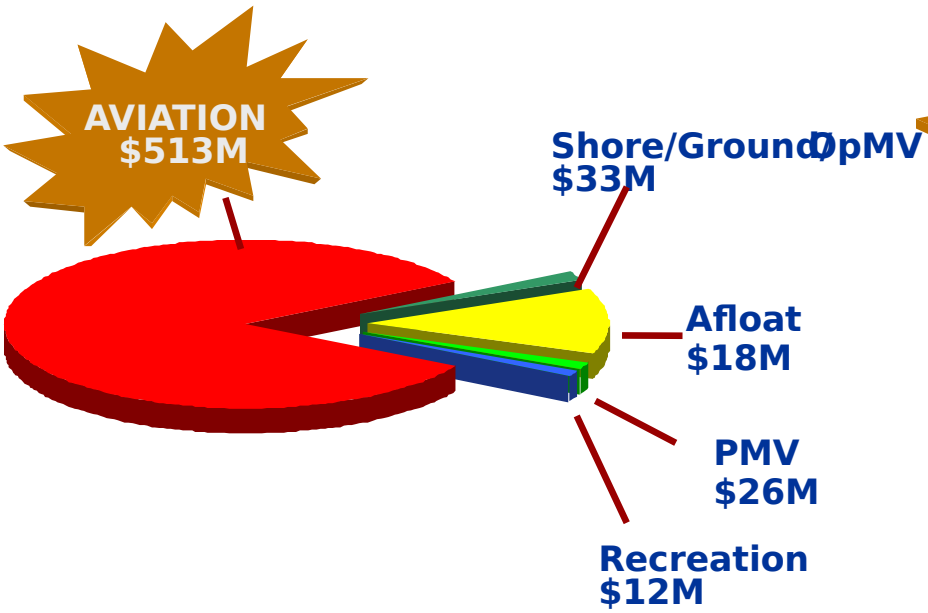
ENDSTATE GOAL IS ZERO!

NSC Data: 28 Feb 0

FY06 Total Cost and Deaths

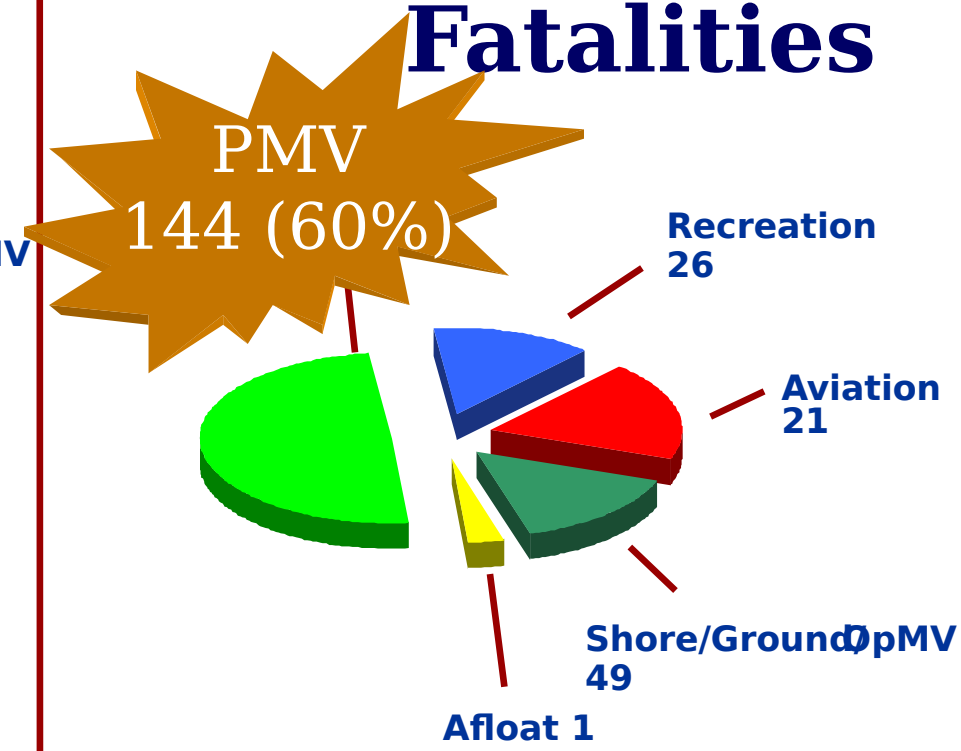
Navy and Marine Corps

Cost



Total Cost: $602M

Fatalities

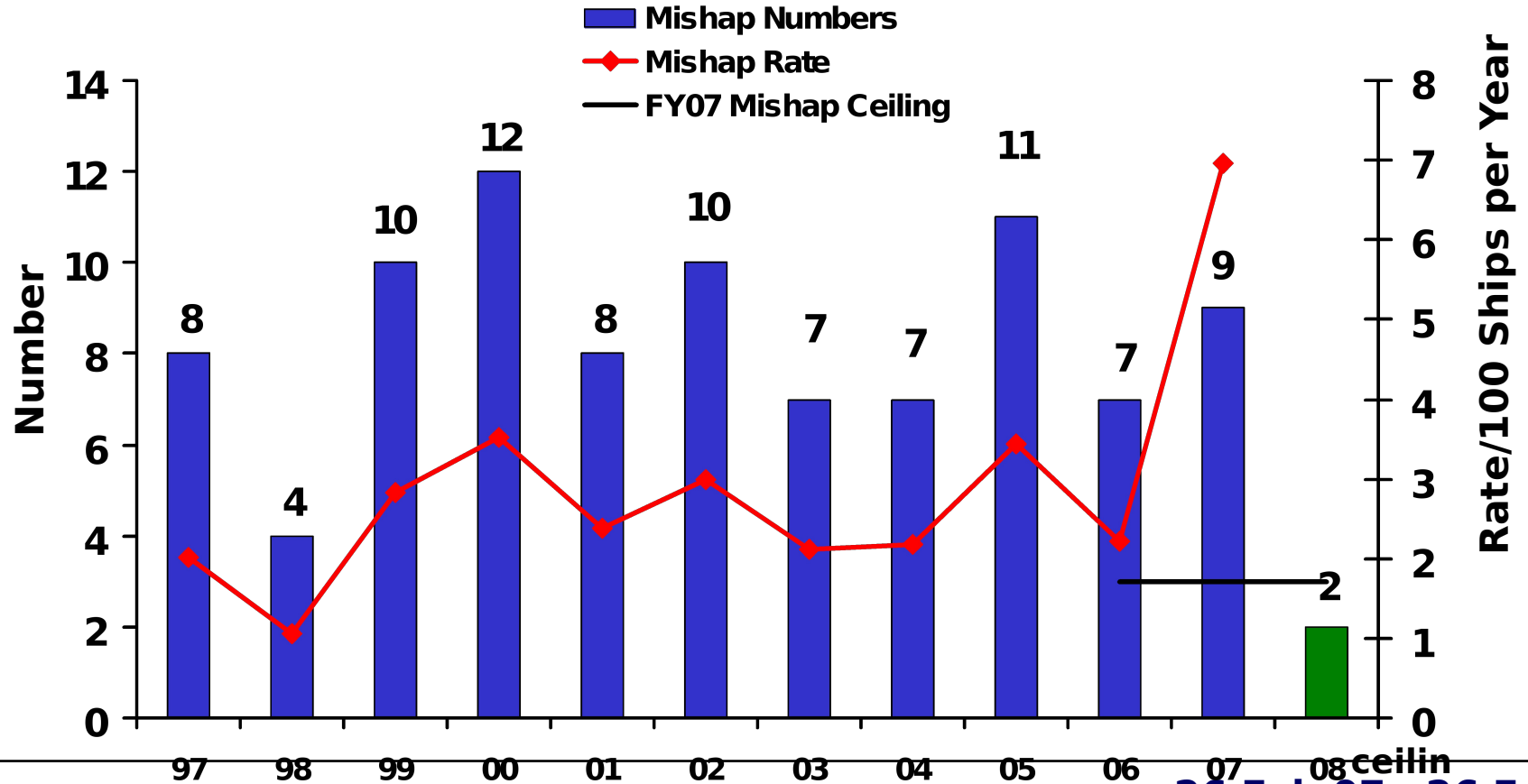


Total Fatalities: 241

FY06 Summary

- **At the current rate:**
  - **Total Class A Operational – better than last 5**
  - **Aviation Class A - better than last 5**
  - **Shore Class A - better than last 5**
  - **Op MV Class A - better than last 5**
  - **Afloat - better than last 5**
  - **Off-duty Rec – Best ever**
  - **Total Operational fatalities – worst than last 5**
  - **PMV – worst than last 12**

CLASS A AFLOAT MISHAPS



	26 Feb 07	26 Feb 06
CLASS A MISHAPS/MISHAP RATE FY COMPARISON:	9 / 6.96	3 / 2.32
FY06 MISHAPS/MISHAP RATE:	7 / 2.22	
10-YEAR AVERAGE (FY97-06) MISHAPS/MISHAP RATE:	8.4 / 2.45	

Narratives

USN AFLOAT CLASS A MISHAPS

08 Jan 07 (SUBLANT/NEWPORT NEWS) Venturi effect caused submarine to collide with supertanker

06 Jan 07 (CNSP/HALSEY) Class B fire in engineering spaces.

29 Dec 06 (SUBLANT/USS MINNEAPOLIS SAINT PAUL) Two sailors died after being swept from deck while leaving port.

01 Dec 06 (SUBPAC/FRANK CABLE) During boiler test, steam leak damaged boiler killing one sailor, injuring 8.

30 Nov 06 (CNSL/BOONE) Following loss of steering while underway, divers discovered rudder missing.

14 Nov 06 (SUBPAC/OHIO) Damage to port dry-deck shelter.

08 Nov 06 (CNSL/GUNSTON HALL) Two LCUs came alive in the ship's well deck during heavy seas causing damage to the ship.

05 Nov 06 (CNSL/HALYBURTON) FFG collided with DDG while mooring.

04 Oct 06 (CNSL/KEARSARGE) During CMAV repairs to ballast tank, aviation supply storeroom flooded.

Afloat Class A Operational Mishaps (Excluding PT):

At the current 7.11 rate (9 mishaps) FY 07 will be:

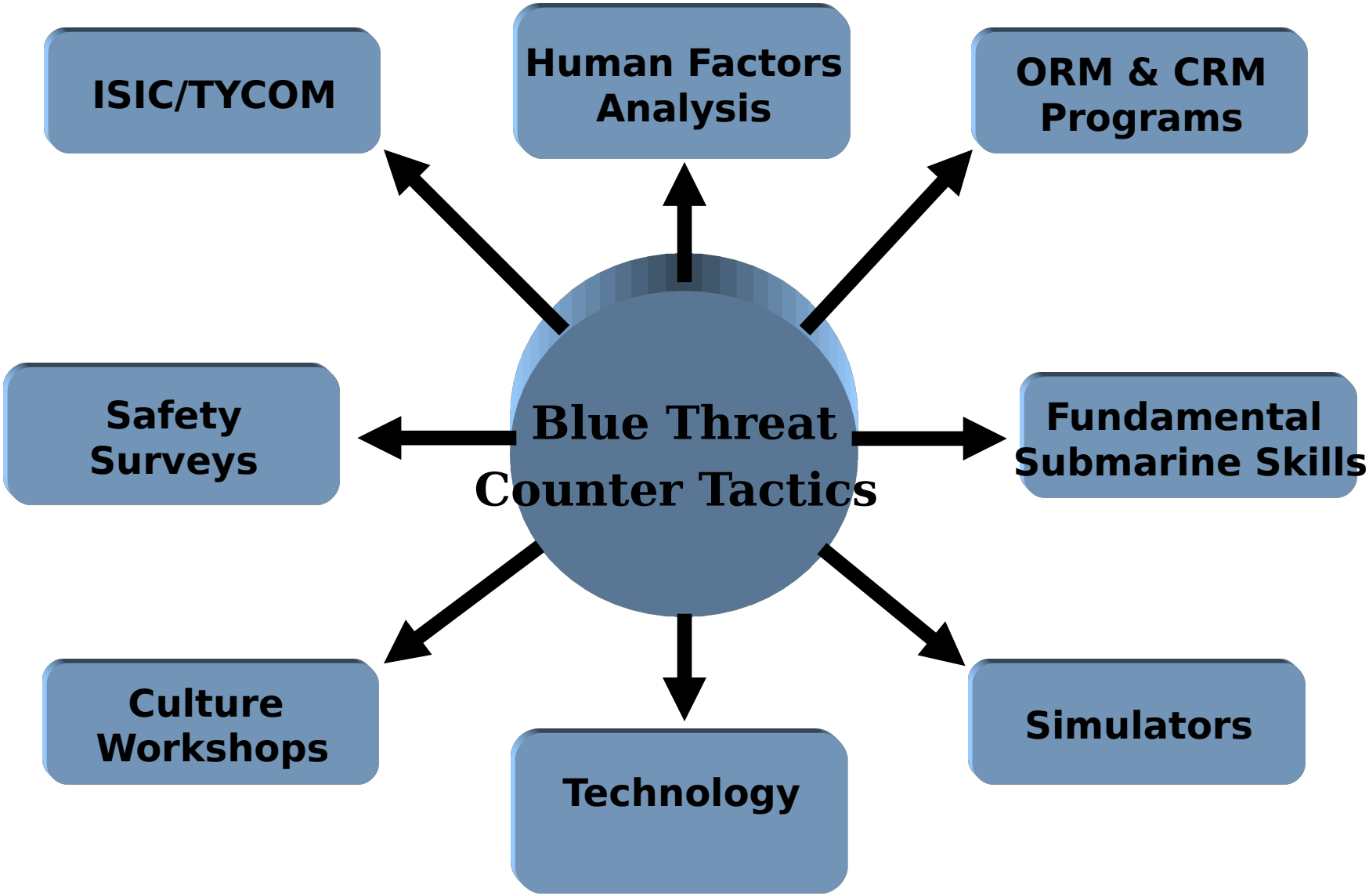
- worse than each of the previous twenty-two years
- worse than the FY07 goal, 1.06, and the FY08 goal, .75

HEAVEN CAN WAIT

Blue Threat – Action/Inaction by own forces causing losses

Blue Threat – Losses far exceed Red Threat losses

Submarine Intervention Strategies



EMERGENCY BLOW

Blue Threat Analysis

Man Overboard Fatalities During Personnel Transfer

- **Dec. 29, 2006--underway from Plymouth, England--five persons were swept overboard by high seas. Ship exited the protection of the breakwater with personnel topside and the forward escape hatch open.**

CAUSAL FACTORS

- **Primary cause- failure of the crew to recognize an extreme sea state outside the protection of the breakwater in both the pre-planning and execution phases.**
- **Personnel improperly wore an extra lanyard, identified as a "working lanyard" increasing the overall length of the tether from the approved 6 feet to 12 feet and subsequently to 16 feet when the dynabrake released. This extra length caused personnel to be continually drugged beneath the surface of the water.**
- **An effective formal ORM assessment was not conducted prior to the piloting brief on 28 Dec 2006.**
- **Additionally, the piloting planning brief did not place any controls on the pilot transfer plan.**

LESSONS LEARNED

- **Develop a "Personnel Transfer at sea" procedure, which would provide more decision point discussions than that currently provided in the CO's standing orders.**
- **Investigate use of a harness with an installed quick-release such that a knife is not required to cut the lanyard to free a person.**
- **Establish a training program on sea state determination and associated effects on the submarine, including how wind effects can mask swells.**
- **Establish submarine weather criteria (wind speed, sea state, visibility, etc) that would preclude underway events or as a minimum require additional mitigations.**
- **Determine if the current cranial helmets onboard submarines are adequate while working topside.**

Blue Threat Analysis

SUBMARINE HITS PIER

Submarine collided with the naval weapons station pier while mooring during daylight hours on 13 Jan 06. Visibility was 5nm and contact density was light. The maneuvering watch was stationed with the commanding officer and squadron commander on the bridge. The executive officer was topside. A bar pilot and a harbor pilot were present on the bridge. A JOOD was stationed and had the CONN.

CAUSAL FACTORS

The ship was standing into danger. The OOD and JOOD did not recognize in time to take sufficient effective action.

Ship handling and ORM skills training conducted by the command as corrective actions for the 5 Oct 05 buoy collision were inadequate.

NSSC OPS sent an arrival information message to the submarine without properly confirming the mooring configuration with the planners at naval weapons station.

The Pilot, Commanding Officer, OOD, and JOOD failed to heed all indications of the ship's proximity to the pier. They failed to correlate the forward tug nearly hitting the pier as a sign that the ship may be too close to the pier for the maneuver to stbd.

LESSONS LEARNED

- Incorporate periodic in-extremis ship-handling training into officer training plans. Include hands-on training in the VESUB (virtual submarine trainer), SPAN (ship piloting and navigation trainer), and MSI trainers.

- Incorporate periodic ship handling characteristics training to include effects of tugs in various configurations and use of SPM (secondary propulsion motor), into officer training plans.

Blue Threat Analysis

Submarine Hits Iceberg

The Command Duty Officer, Conning Officer, and High Frequency Array (HFA) operator were stationed in control per the Commanding Officer's Standing Order. The ice pilot was not present. At 1132z, the SSN detected an ice keel off the bow; the Conning Officer and HFA operator tracked the ice keel until it faded; there were no maneuvers and no reports to the CDO. At 1135z, the SSN struck this ice keel. The ship's sail and STBD side of the hull impacted the ice keel for approx three seconds.

Damage included:

-High frequency window/array caved in / HF array was OOC
-#3 towed array fairing scraped & safety track raised 2”
-Estimated cost to repair or replace: $2,000,000
-Radar mast ice fairing was dented
-Towed array tube dented
-STBD running light & cover removed

Causal factors

- **The primary cause of the collision with the ice keel was a false belief that ice keels would not exceed 60 feet for this time of year in this location. Based on this knowledge error, the depth of 130 feet was chosen and was believed to be safe from possible ice impact. The knowledge error also caused expectancy which led the ship to not believe indications of a deeper ice keel and therefore not execute an ice keel avoidance maneuver. The SSN's speed was excessive. Over-reliance on historical data and the substantial experience of the ice pilot created a false sense of security.**

Lessons Learned

-Evaluate POMCERT process to ensure procedures and level of knowledge of the submarine are adequate to safely conduct under-ice operations.
-Provide two pilots to allow continuous coverage while under the ice canopy.
-Develop improved ice transit training to include:
(1) bqs-15a/arci high-frequency array (HFA) specific data/video.
(2) high-frequency array (HFA) and top sounder operations and optimal lineup.
(3) speed/depth recommendations for specific locations and time of year including a clear warning of possible significant deviations from expected maximum ice keel depths.

144 USN & USMC PMV Fatalities
=
8.6 USS Cole Losses

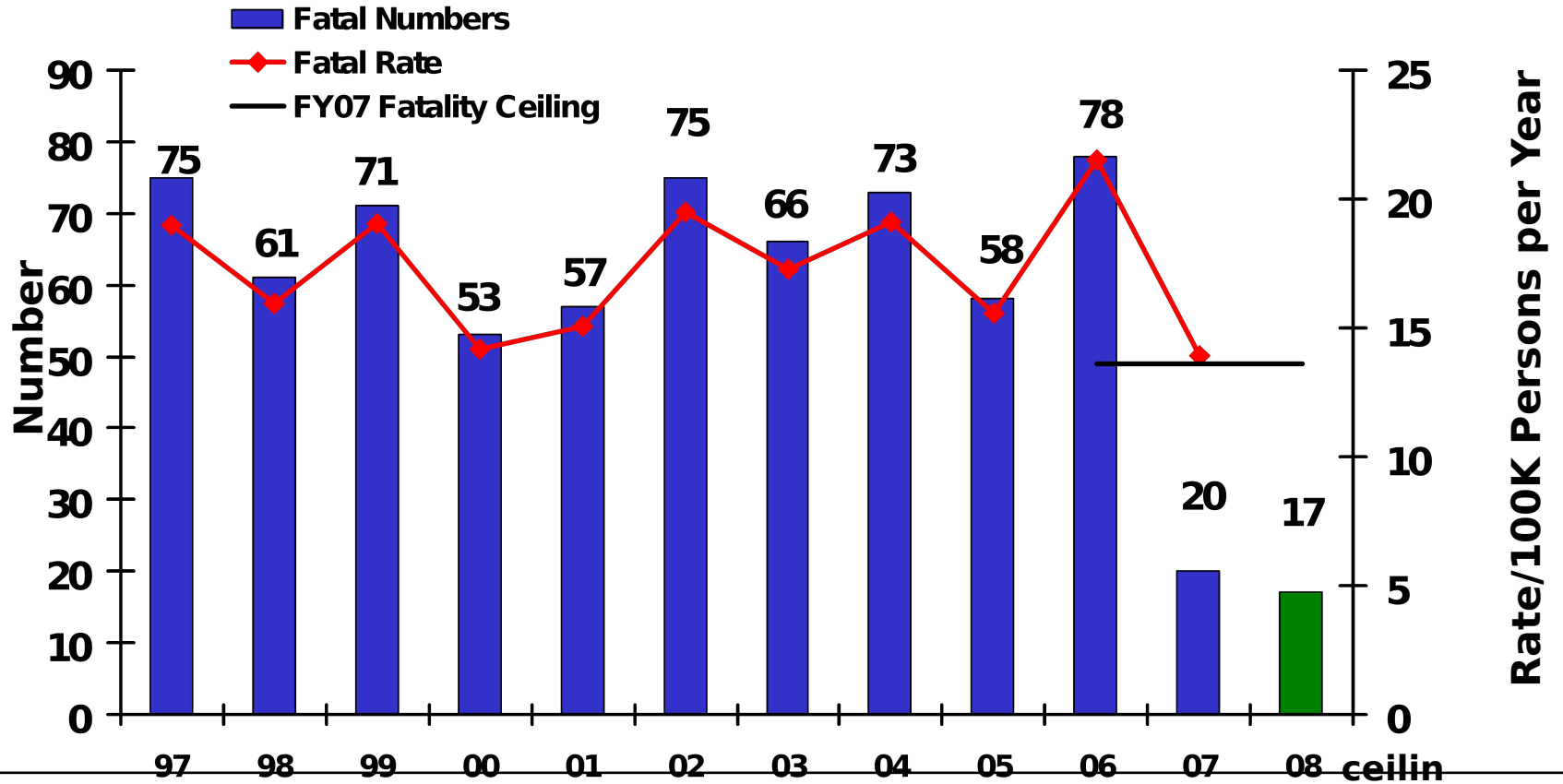








PMV FATALITIES

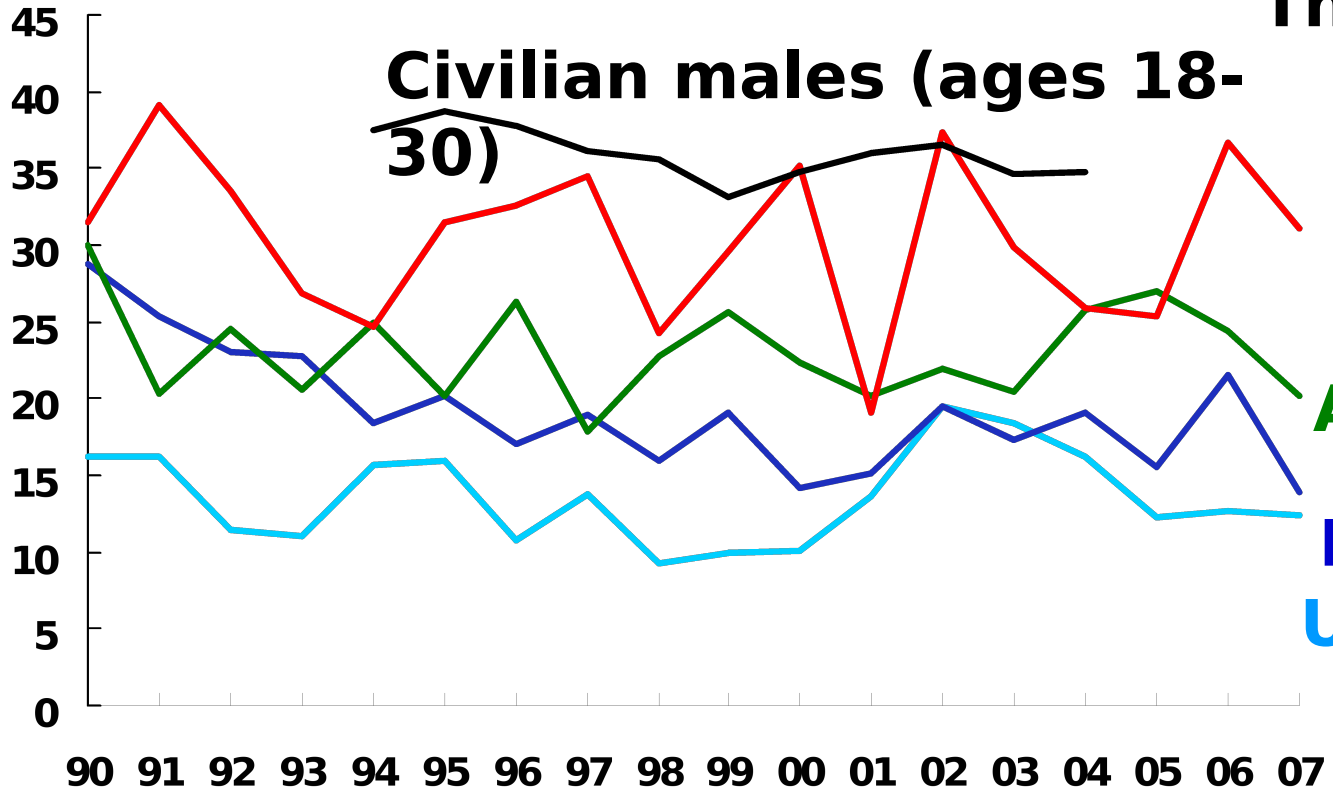


	26 Feb 07	26 Feb 06
CLASS A FATALITIES/FATALITY RATE FY COMPARISON:	20 / 13.91	41 / 27.50

FY06 FATALITIES/FATALITY RATE: 78 / 21.49

10-YEAR AVERAGE (FY97-06) FATALITIES/FATALITY RATE: 66.7 / 17.61

Armed Forces Traffic Fatality Rates



Rates per 100,000 active duty military personnel per year.

Percentage of Force Under 26 Years

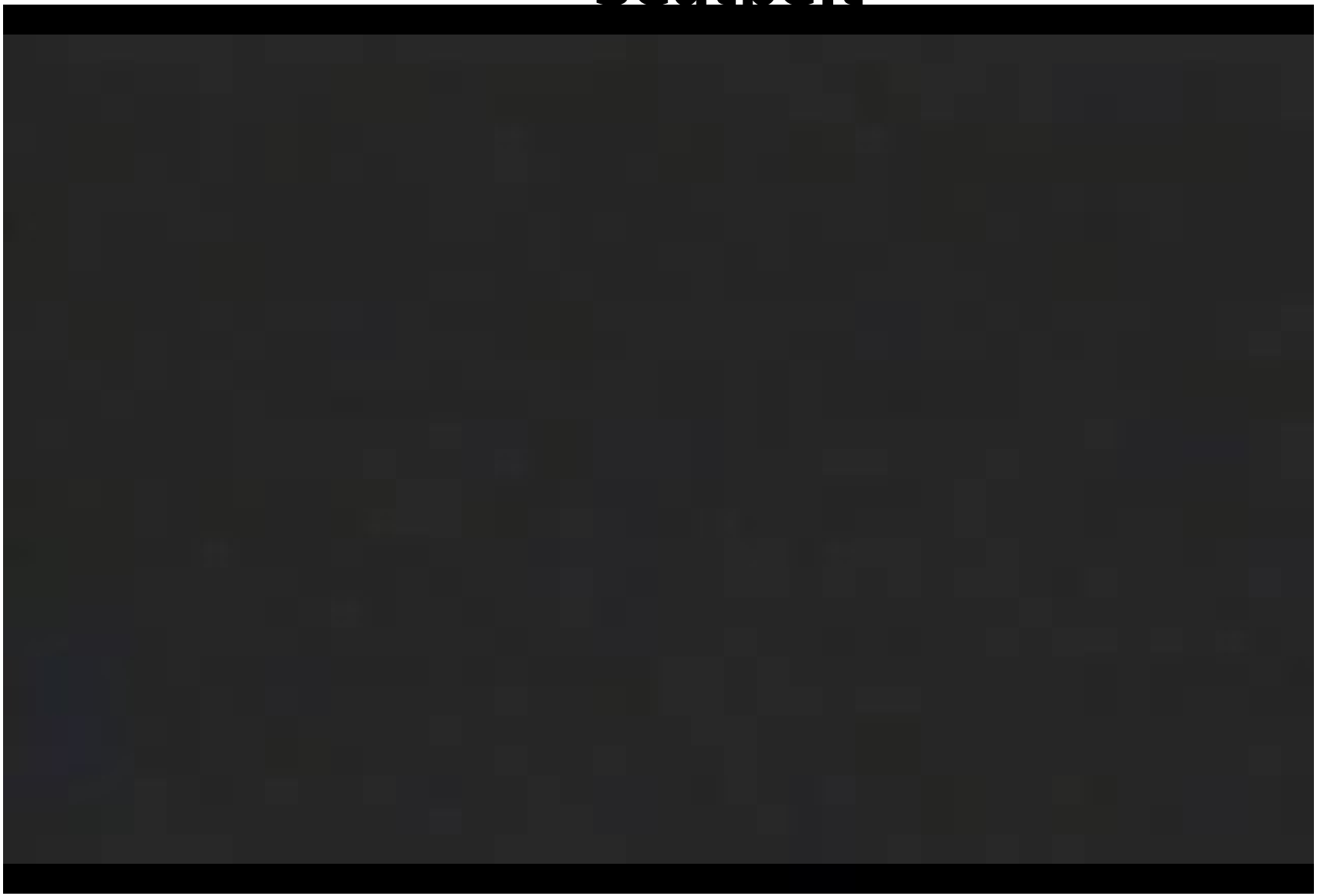
USMC = 69%

Army = 48%

Navy = 45%

USAF = 39%

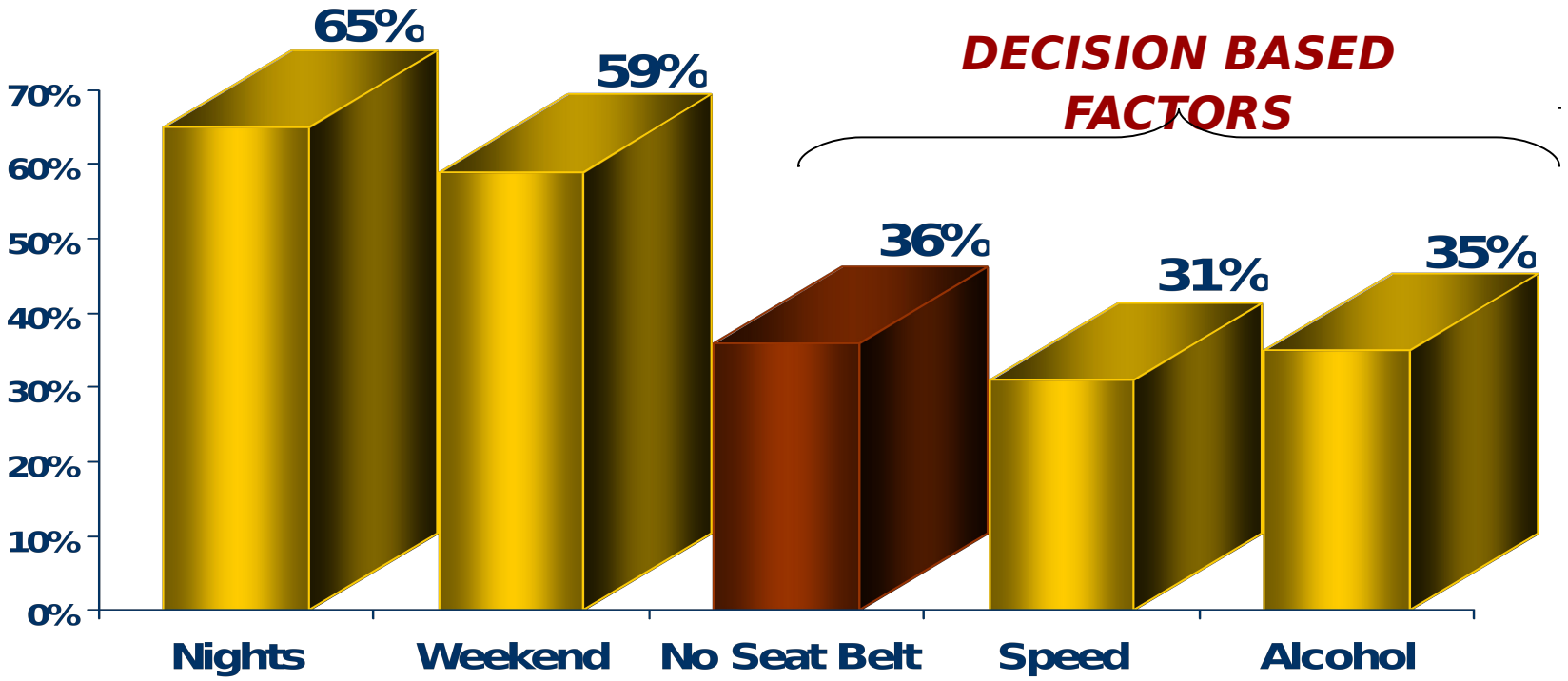
No One Should Die Because They Weren't Wearing A Seatbelt



Leading Factors in PMV Deaths

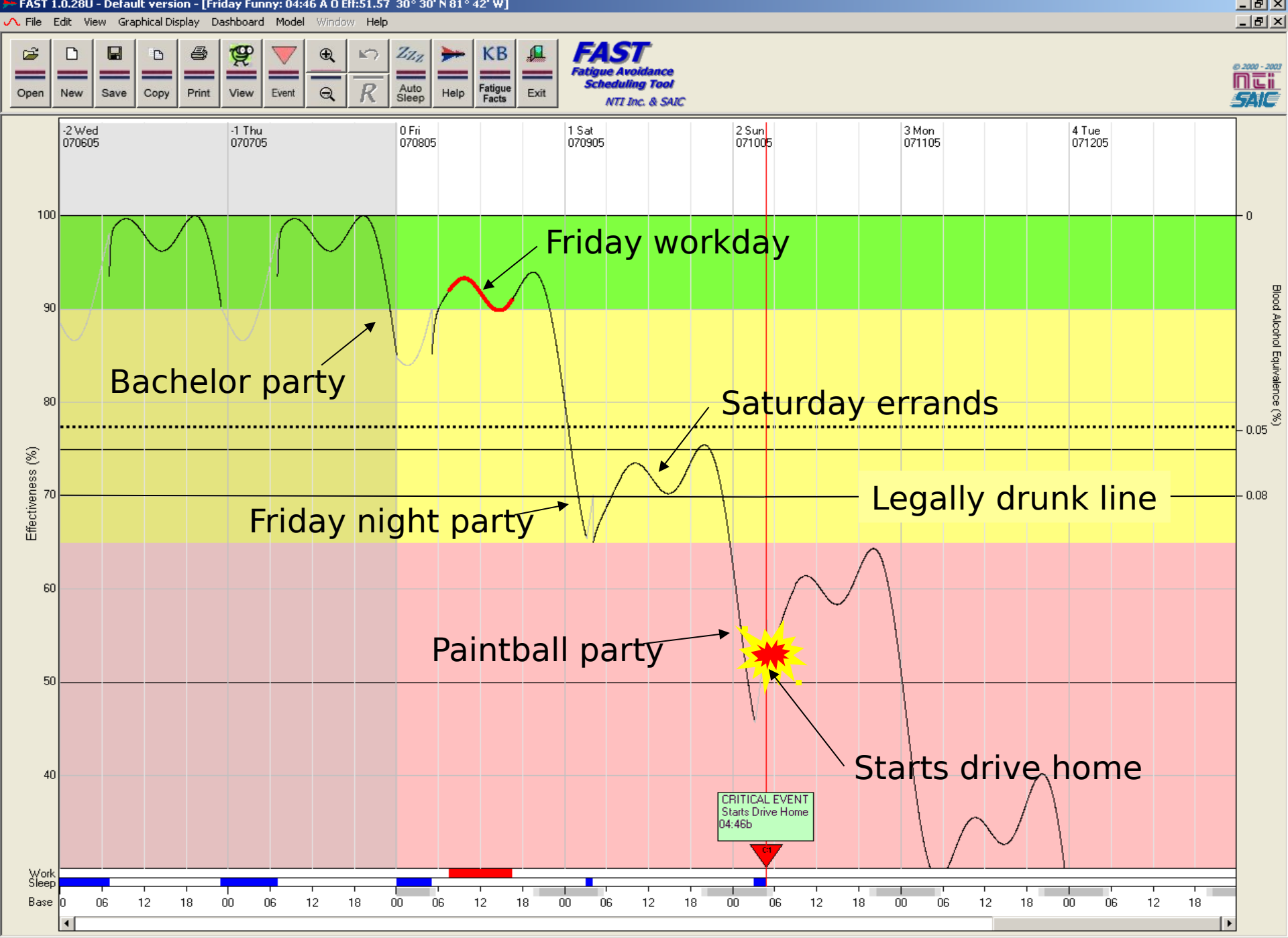
FY02 – FY06

Fatigue is considered a major factor in traffic deaths, but is <u>under-reported</u> throughout the fleet.



“The effects of FATIGUE”

- **An E-5 went to a bachelor party until midnight, slept five hours, then went to work. Toiled all day, then went on leave.**
- **Drove 120 miles to a party and boogalooed until 3:00 in the morning. Slept for an hour on the way back, ran errands all day, met some friends for a midnight game of paintball that lasted, once again, until that magical hour of 3 a.m.**
- **Headed home at 4:45 a.m. Pulled over within 30 minutes to stretch and yawn.**
- **He then got back behind the wheel, fell asleep on a causeway, veered off the road and ran into two guard rails. His pickup truck went airborne and splashed down into the bay below.**
- **The Sailor came to, released his seat belt, crawled through a broken window, and swam to a pylon. Fortunately, a passing motorist had seen this drama and called emergency services.**
- **The sound of your vehicle crumpling into an indistinguishable wad around your suddenly wide-awake self is your last choice in an alarm clock. And spending four days in the hospital and two weeks convalescing is a dismal way to spend your two weeks of post-deployment leave.**


FAST 1.0.28U - Default version - [Friday Funny: 04:46 A O Eff:51.57 30° 30' N 81° 42' W]
File Edit View Graphical Display Dashboard Model Window Help
Open New Save Copy Print View Event Auto Sleep Help Fatigue Facts Exit
FAST
Fatigue Avoidance Scheduling Tool
NTI Inc. & SAIC
-2 Wed 070605
-1 Thu 070705
0 Fri 070805
1 Sat 070905
2 Sun 071005
3 Mon 071105
4 Tue 071205
Friday workday
Bachelor party
Saturday errands
Friday night party
Legally drunk line
Paintball party
Starts drive home
CRITICAL EVENT
Starts Drive Home
04:46b
Effectiveness (%)
Blood Alcohol Equivalence (%)
100
90
80
70
60
50
40
0
0.05
0.08
Work
Sleep
Base
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Start
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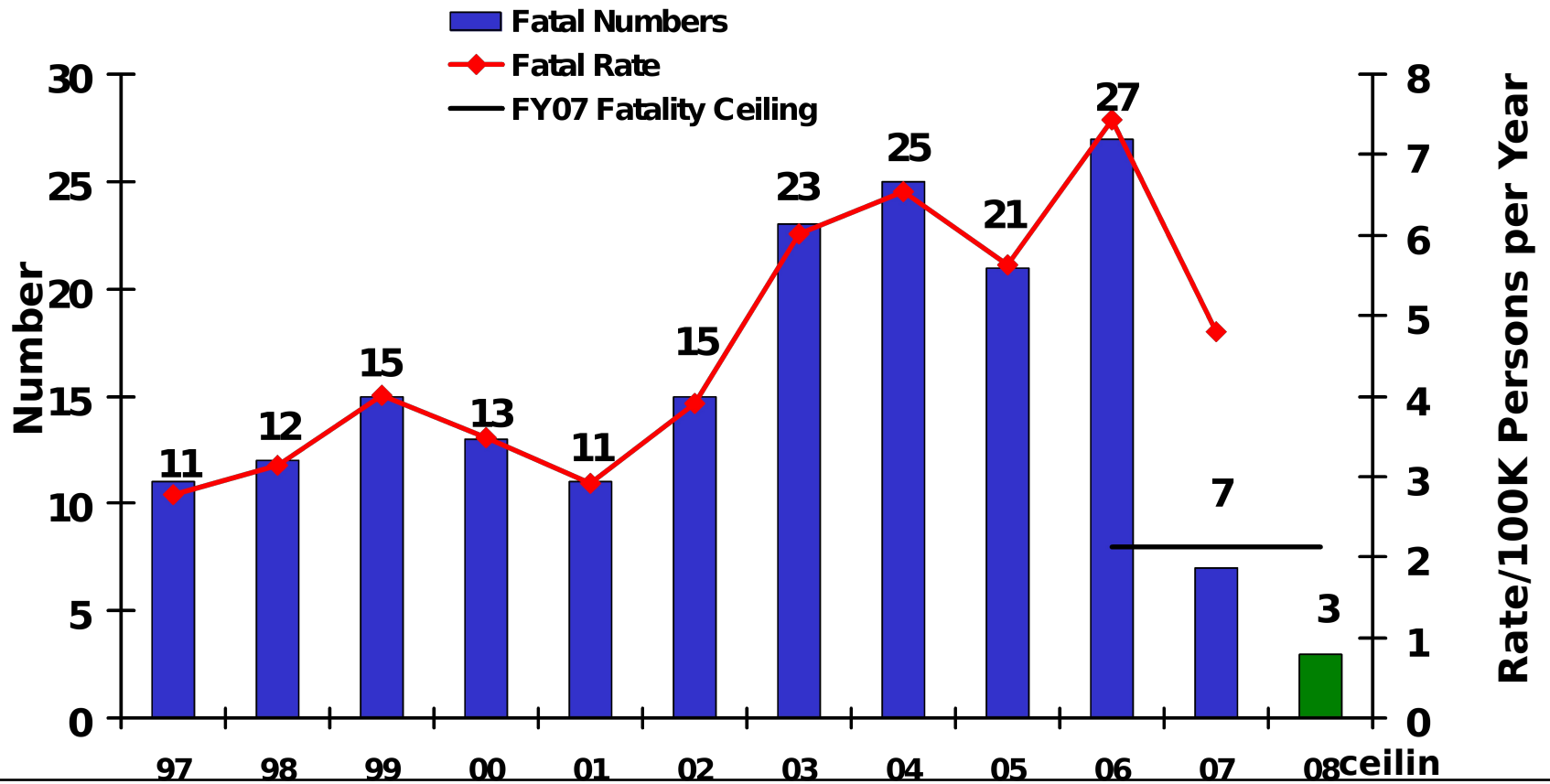
Microsoft PowerPoint - [...
2:49 PM


DRIVECAM

Best Fleet Practices – PMV

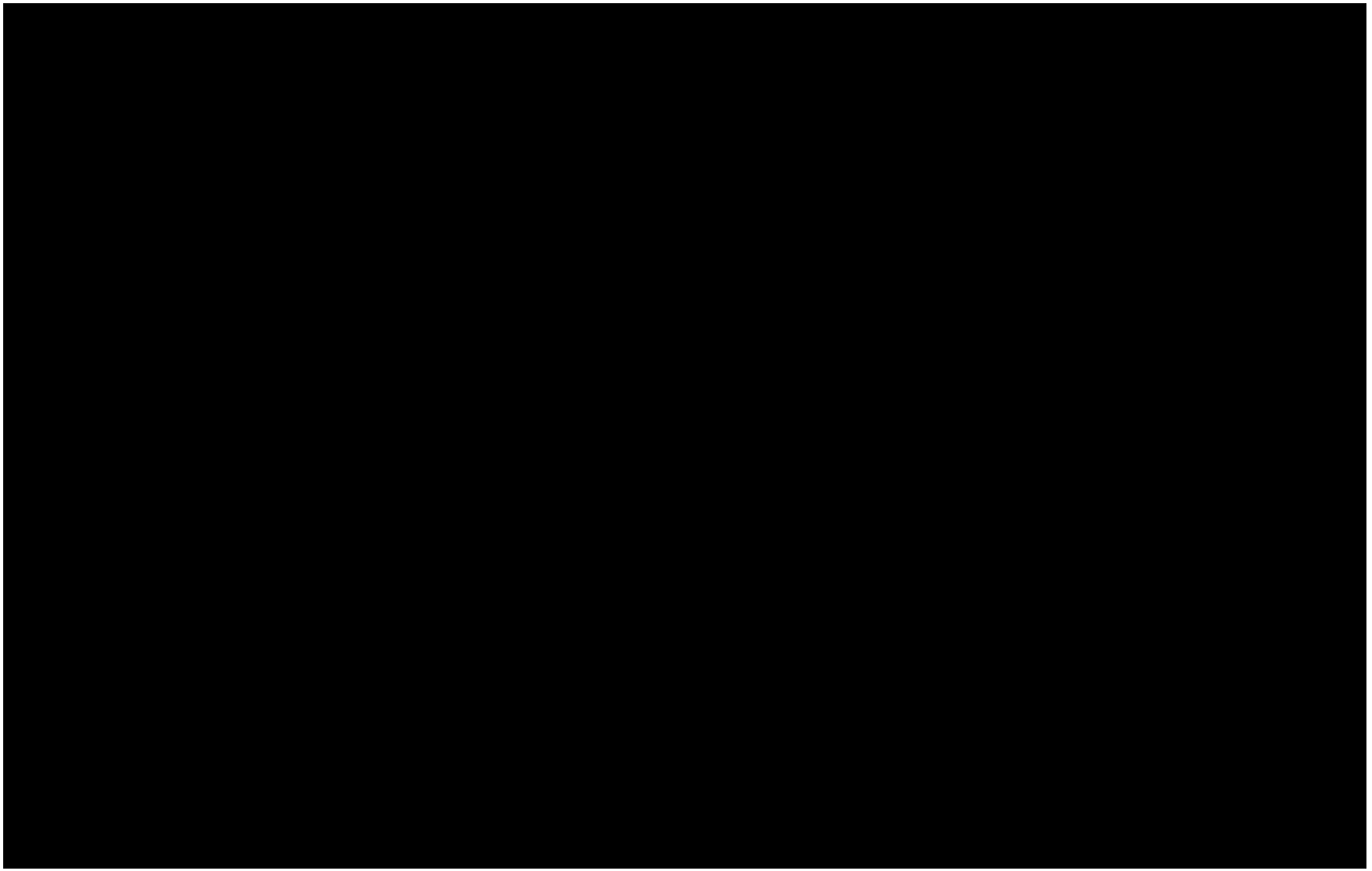
1. **Risk Management – Find out who is at risk – Help them manage that risk.**
2. **Letter home to solicit family's help to keep their loved one safe.**
3. **Traffic Safety Toolbox to provide the necessary tools to reduce mishaps.**
4. **Engage in partnerships with local community. (Click It or Ticket, You Drink, You Drive, You Lose, MADD)**
5. **Traffic Safety Across America. (Trained supervisory personnel on drinking and driving, seat belt use, PPE, speed, fatigue)**
6. **TRiPS**

MOTORCYCLE PMV FATALITIES

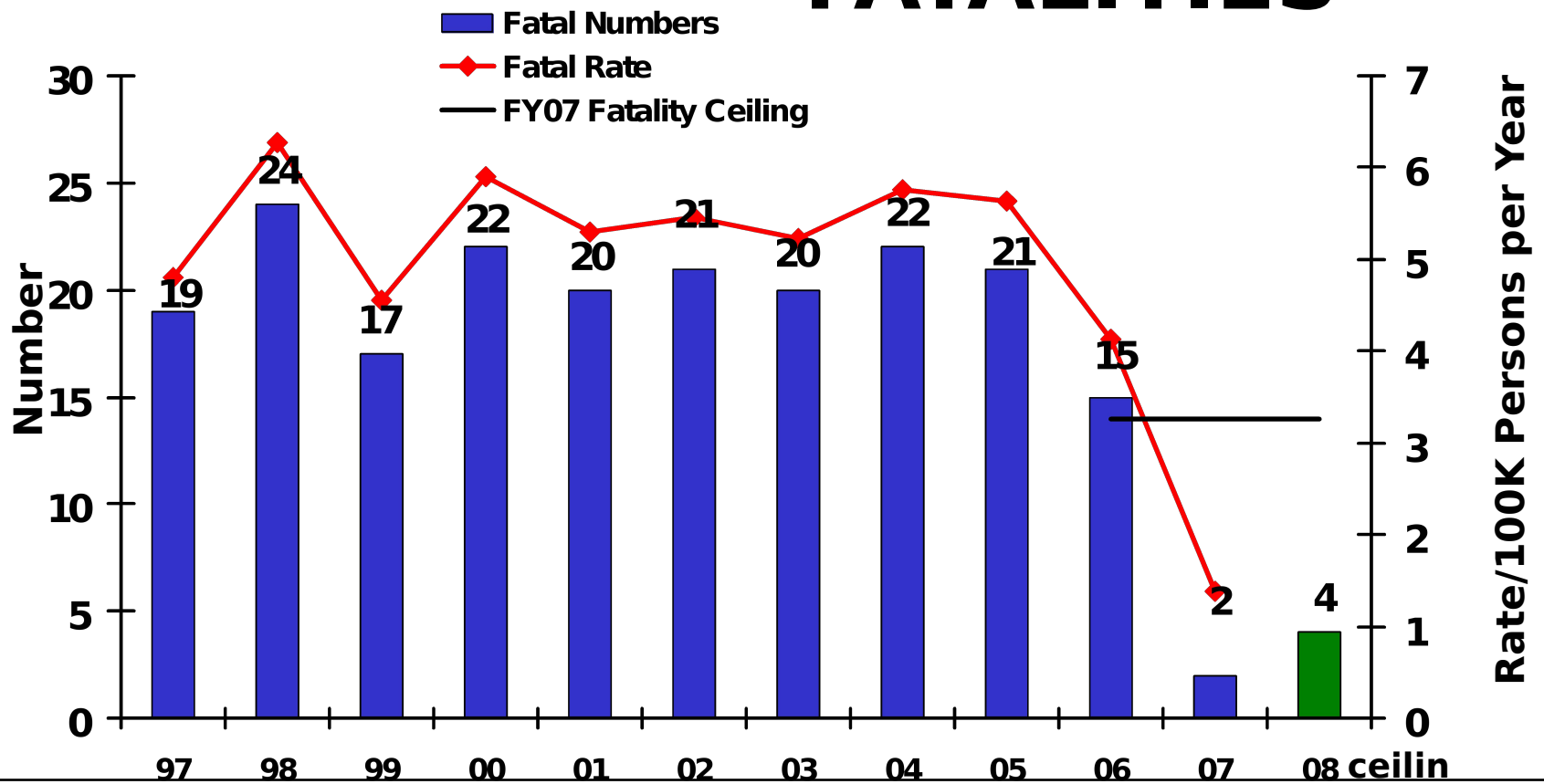


	28 Feb 07	28 Feb 06
CLASS A FATALITIES/FATALITY RATE FY COMPARISON:	7 / 4.80	9 / 5.95
	FY06	
FATALITIES/FATALITY RATE:	27 / 7.44	
10-YEAR AVERAGE (FY97-06) FATALITIES/FATALITY RATE:	17.3 / 4.57	

How Close?



OFF-DUTY/REC FATALITIES



	26 Feb 07	26 Feb 06
CLASS A FATALITIES/FATALITY RATE FY COMPARISON:	2 / 1.39	7 / 4.70
FY06 FATALITIES/FATALITY RATE:	15 / 4.13	
10-YEAR AVERAGE (FY97-06) FATALITIES/FATALITY RATE:	20.1 / 5.31	

Best Fleet Practices – Off-Duty/Rec

1. **Commanders/Commands and supervisors engaged in Risk Management and RODS program.**
2. **<u>Individuals</u> use risk management process before participating in their leisure-time activities.**
3. **RODS Program Managers – Ensure command personnel have seasonal hazard awareness training.**
4. **Individual Off-Duty Risk Assessment Form – Assess behavior factors and indicators related to off-duty recreation mishaps.**

THE COMMANDING OFFICER

Report Card

Report		Afloat	PMV		Rec		Grand Total
FY		A	A	C	B	C	
2004	LOUISVILLE		1				1
	PRECOMUNIT VIRGINIA					1	1
2005	TENNESSEE GOLD CREW			1	1		2
2006	NORFOLK			1			1
	ALBANY	1					1
2007	TENNESSEE GOLD CREW			1			1
Grand Total		1	1	3	1	1	7

Recommendations to Improve Safety in Your Command

1. **Naval Safety Center Website - The Tools Are There!**
   - **Traffic Safety Toolbox**
   - **Web-Enabled Safety System (WESS) – Online mishap reporting / database**
   - **Leave and Liberty Risk Assessments**
2. **Ensure a SOLID Welcome Aboard, Sponsorship/ Mentorship Program.**
   - **First impressions are lasting ones**
   - **On and Off duty activities must be addressed**
3. **Identify "high-risk" personnel within command.**
   - **Ensure leadership is engaged with subordinate personnel**
   - **Establish awareness training of high-risk activities and mentoring for high-risk personnel**
   - **Identify motorcycle operators and confirm required training is complete**
   - **Conduct Human Factors Councils to identify potential**

Recommendations to Improve Safety in Your Command

4. **Do the inexpensive things at a minimum.**
   - **Schedule a Culture Workshop / Safety Survey**
   - **Distribute “Safe Ride” taxi cards**
   - **Conduct pre-holiday safety standdowns**
   - **Require leave chit risk assessments prior to authorizing leave**
5. **Maintain high-visibility within command.**
   - **Establish and enforce standards– defined command safety policy**
   - **Treat every mishap the same (PMV/Off-Duty Fatality hurts command as much as material mishap)**
   - **Correct safety deficiencies immediately**
   - **Hold personnel ACCOUNTABLE for failure to follow regulations**
6. **INSPECT for compliance**
   - **Verify command policies are being followed**
   - **Demonstrate daily commitment to safety**
   - **Ensure experience level matches assigned duties**

TRAFFIC RISK PLANNING SYSTEM

- TRiPS
  - Delivered to the Naval Safety Center for Fleet use in 2006; based on ASMIS-2 Army Safety Management Information System
  - A click away on **http://www.safetycenter.navy.mil**
  - Provides ORM trip assessment and actual mishap cases relevant to planned trip. Risk values/models based on NTSB data
  - Trip map, times, distances and other products improve ***supervisor interaction;*** CBT course content designed to help change behavior

What We Can Do for You

ON THE ROAD

- Culture workshops
- Unit surveys
- ORM unit training
- Mishap investigations
- USMC MTT seminars
- PCO briefings
- NAVOSHENVTRACEN Safety & Occupational Health Training

AWARENESS

- Fleet Analysis
- Magazines printed/distributed (473,000 copies)
- Interactive CD's
- Acquisition process in-roads
- Safety advisories
- Customer information requests (3,600+ database queries per month)
- Safety Center web page

Where We're Going...

- **ORM – Revitalization**
  - **NSC Model Manager**
  - **Common Model**
  - **Time Critical ORM**
  - **Assessions**
- **Motor vehicle mishap reduction initiatives**
  - **USN / USMC IG effort**
  - **ID high-risk Sailors / Marines**
  - **DUI / DWI NJP guidance**
  - **Driver-training continuum**
  - **Motorcycle training**
- **Executive Safety Board**
  - **USN / USMC**
- **WESS Upgrades**

NSC Website: Your Valuable Resource

www.safetycenter.navy.mil

SUB PCO Marc

A MISHAP-FREE NAVY + MARINE CORPS Team